REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested. Claims 1-12 are pending.

In the outstanding Office Action the JP references filed in the IDS of June 2, 2005 were indicated as not being considered; the Abstract was objected to; Claim 2 was rejected under 35 U.S.C. §112, first paragraph; Claims 1-7 and 9-12 were rejected as being unpatentable over Shigeki et al. (JP 2002-259095) in view of Yoshitaka (JP 11-212725) and further in view of Divigalpitiya et al. (U.S. Publication No. 2003/0205450).

In reply to the comments about the IDS, Applicants respectfully submit that references AO-AS as listed on the 1449 form of the IDS filed on June 2, 2005 should have been considered by the Office. In the cover sheet for the 1449 form, Applicants indicated that "copies of the listed references are attached, where required, as are either statement of relevancy ...". In this case, the statement of relevancy was the PCT search report that identified the respective references as all being "A" references, namely "document defining the general state of the art which is not considered to be of particular relevance". Thus, as Applicants did file a statement of relevance for each of the JP references cited in the IDS form, Applicants request that the Office consider each of the JP references and provide an updated 1449 form, indicating that the Examiner has considered these references.

Applicants traverse the rejection of Claim 2 under 35 U.S.C. §112, first paragraph. The basis of the rejection is that "the specification does not enable one [skilled] in the art how the deformation mechanism portion is measured...while maintaining the period for which the operation surfaces deformed in one direction is 33 times or more than the period for which the operation surface is deformed in the reverse direction". Perhaps, the Office is reading this claim language to indicate that somehow the deformation mechanism is actually measuring the amount of deflection. This is not required by the claim. Instead, Claim 2 is merely

explaining that when (i.e., a given condition) the maximum deformation amount of the operation surface is 200 μm or less, then the other claimed conditions hold. There is no *in-situ* measurement of the amount of deformation. Instead, this language is describing a physical property of deformation mechanisms covered by Claim 2. Support for the 200 μm or less language is found at least at page 20, lines 16-20. Accordingly, it is respectfully submitted that Claim 2 is enabled by the present specification.

A detailed description of how the timing of deformation in one direction, followed by deformation in the other direction, is found in numerous places in the specification. The specification beginning at page 22, line 12 describes a press force detection portion 61 that detects a timing at which the user presses the touch panel portion 2 with his or her finger, thus giving rise to the "PUSH timing". The timing at which the user releases his or her finger is referred to as the "PULL timing". A sense pressure set switch 71 can be set to a level of sensitivity of a force sense that the user can feel with force sense feedback function at the touch panel 2 (page 23, lines 2-7). The sense pressure set switch 71 can be set to three different levels "hard", "mid", and "soft". The sense pressure set portion supplies a timer set value to a timer 81 of the actuator control portion 8 corresponding to the setting of the sense pressure set switch 71. The sense pressure set portion supplies an operation start signal to the timer 81 at the PUSH timing supplied from the press force detection portion 61. (Specification page 23, lines 10-20).

The control signal output portion 83 outputs a control signal that causes the polarity of the output signal at the driver circuit 9 to be changed in accordance with the timing signals of the reference voltage control portion 82 (specification page 24, lines 20-24). Thus, the driver circuit 9 applies the drive voltages VH and VL to the piezoelectric actuator 3 corresponding to the signal supplied from the reference voltage control portion 82. (Specification, page 25, lines 1-10). The driver circuit 9 varies the drive voltages VH and VL that are output to the

wiring terminals 31a and 31b corresponding to the reference voltage supplied from the reference voltage control portion 82. (Specification page 25, lines 4-22, generally).

Furthermore, the process shown in Figure 6 explains the timing for use in applying the various control voltages. Page 26, line 19 to page 30, line 18, describes a detailed description of how the control voltages are used to affect the relative timings T1 and T2 as shown in Figure 4.

Based on this detailed description of how the timing operates, and in recognition of the constraint of the deformation amount of the piezoelectric actuator as being 200 μm or less (specification page 20, lines 16-20), the period T1 (the rise time of the voltage rise in a first direction, can be 33 times as large as the period T2 (see, e.g., Figure 4)) so as to provide the user with a "click sense" (page 21, line 5). Measurement of the deflection amount is <u>not required in normal operation</u> because a deformation mechanism can be selected as a design parameter to have a deformation of 200 μm or less. Thus it is respectfully submitted that the present specification provides an enabling description of how the control operation is performed when recognizing that the deformation mechanism has a maximum deformation amount of 200 μm or less.

Claim 1 is directed to an input apparatus that among other things includes a control portion that controls a deformation mechanism. The control portion starts <u>driving</u> the piezoelectric actuator to gradually deform the operation surface in one direction. <u>Then</u> the control portion <u>drives</u> the piezoelectric actuator to deform the operation surface in the reverse direction. The control portion controls these operations such that a period of deformation in one direction is sufficiently larger than the period in which the operation surface is deformed in the reverse direction. Moreover the control portion <u>drives</u> the deformation in <u>two directions</u>.

In a nonlimiting example, Figure 4 shows a situation where the Y axis shows a deformation amount of an operation surface. At time T401, the deformation amount moves from the zero to a maximum amount at time T402. During this time, the piezoelectric actuator 3 is driven to cause the operation surface to gradually deform upward (specification page 18, lines 22-25). After a predetermined time period T1, at the time T402, the piezoelectric actuator is driven to deform the operation surface in the reverse direction. The operation surface is deformed to a maximum amount in the opposite direction at time T403. (Specification page 19, lines 3-5).

As explained at page 19, lines 21-25, when the period T1 is much longer than the period T2, the user almost does not feel the upward deformation during time period T1, but then during period T2, the user can feel a "click sense" with a much larger force sense then that during period T1.

An advantage with this approach is that the touch panel may be deformed from being maximally curved in one direction and then maximally curved in the reverse direction without having power consumed by the piezoelectric actuator to become large (specification page 3, line 21 to page 4, line 7) or using power in a standby state. With this efficient use of power, the user gets the tactile sensation of a "click" by the slow movement of the operation surface in one direction followed by a rapid movement in the opposite direction.

The outstanding Office asserts that she Shigeki et al. teaches the control portion of Claim 1 except does not "explicitly teach a piezoelectric actuator and a period for deformation in one direction that is larger than in the reverse direction". The outstanding Office Action relies on Yoshitaka and Divigalpitiya et al. for a description of the periods when the deflection is longer in one direction than the other. Applicants respectfully traverse this characterization.

Contrary to what is asserted in the Office Action, Shigeki et al. does not disclose a control portion that controls said deformation mechanism to start driving the actuator in one direction and then in the reverse direction. Shigeki et al. is distinguished in the background section of the present application (see, e.g., page 2, beginning at line 13). Paragraph [0040] of Shigeki et al. merely explains that there is a "sense-of-force device", that is operated to resist a user's finger when pushed thereon. Moreover, the sense-of-force device uses a bobbin coil to "put back to a user side" the user's finger after the user's finger is used to push on the surface. It is this "put-back" force that Shigeki et al. uses to provide a sense of feedback. However, Shigeki et al. never describes a control portion that controls the deformation mechanism to start driving the piezoelectric actuator to deform the operation surface in one direction and then the other. Rather, in Shigeki et al. it is the user's finger that pushes the surface in a first direction. There is no control portion that drives the piezoelectric actuator to gradually deform the operation surface as claimed.

The outstanding Office Action also refers to paragraph [0046] in Shigeki et al., but this merely describes a driver circuit to provide feedback by driving the bobbin coil. Shigeki et al. simply does not disclose a control portion that drives the operation surface gradually in one direction and then in the reverse direction.

Yoshitaka is asserted for its description of a piezoelectric device that detects an input position. Assuming, *arguendo*, that this is the case, Yoshitaka does not cure the deficiency discussed above with Shigeki et al.

Divigalpitiya et al. is asserted for its description of different periods for driving the surface in one direction, from the other direction. However, it seems that the outstanding Office Action is construing the reverse direction where the surface is merely restored (through resiliency) to the original position as "driving" a piezoelectric actuator. Instead,

Divigalpitiya et al. is merely describing the "relax" time of the particular materials involved without any particular description of driving the actuator.

Therefore, no matter how Shigeki et al., Yoshitaka and Divigalpitiya et al. are combined, the combination does not teach or suggest all of the elements of independent Claim 1.

Although of differing statutory class and/or scope, it is respectfully submitted that Claims 2-12 also patentably define over the asserted prior art for substantially the same reasons as discussed above with regard to Claim 1.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-12 is enabled and patentably distinguishing over the asserted prior art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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